



Mark Donowitz, MD
Johns Hopkins University
Cellular and Molecular Medicine

Address:

Johns Hopkins University School of Medicine
Ross 925
720 Rutland Avenue
Baltimore, MD 21205

Phone 410 955 9675

Email: mdonowit@jhmi.edu

Website: http://cmm.jhu.edu/index.php?title=Mark_Donowitz

Statement of Research Interests

I am a scientist at Johns Hopkins in the GI Division/Department of Medicine and Department of Physiology. I am a Professor of Medicine (LeBoff Chair) and Physiology, an NIH funded researcher for the past thirty years, Director of a Digestive Diseases Research Center funded by NIDDK, Director of a private Hopkins-related GI Center called the Hopkins Center for Epithelial Disorders which includes 30 scientists interested in molecular biology of transport proteins, the current holder of 2 RO1's, a Program Project Grant, and a Training Grant. In addition, I have credibility from a national perspective of being the President of the American Gastroenterological Association (2006-2007), which is the main gastroenterological association in the world. The area of my research is in epithelial transport proteins, and we are the group that cloned a series of transport proteins called Na/H exchangers and their regulatory proteins which are PDZ domain containing proteins. Our goals are to understand the signaling complexes that form on the NHE3 C-terminus and to understand how these complexes are involved in regulation of intestinal Na absorption. We have modeled these signaling complexes and are using a peptide mimic as a potential way to stimulate intestinal Na absorption which may allow development of a drug to treat diarrheal diseases. I am also the winner of the American Physiology Society Distinguished Research Award and the Horace Davenport Career Achievement Award and a Fellow, American Association for Advancement of Science.

Recent Articles

- Mahon, M., Donowitz, M., and G. Segre. Na⁺/H⁺ Exchanger Regulatory Factor 2 directs parathyroid hormone 1 receptor signaling. *Nature*, 417:458-461, 2002. PMID: 12075354
- Donowitz, M. and X. Li. Regulatory binding partners and complexes of NHE3. *Physiol. Rev.* 87:825-872, 2007. PMID: 17615390
- Brett CL, Kallay L, Hua Z, Green R, Chyou A, Zhang Y, Graham TR, Donowitz M, Remy C, Coles JA. Genome-wide analysis reveals the vacuolar pH-stat of *Saccharomyces cerevisiae*. *PLoS One*, 6:e17619, 2011. PMID: 21423800.
- Zhu X, Cha B, Zachos NC, Sarker R, Chakraborty M, Chen TE, Kovbasnjuk O, Donowitz M. Elevated calcium acutely regulates dynamic interactions of NHERF2 and NHE3 in OK cell microvilli. *J Biol Chem.* 286:34486-34496, 2011. PMID: 21799002; PMCID: 3186394.
- Lin, R., Murtazina, R., Cha, B., Chakraborty, M., Sarker, R., Chen, T.E., Lin, Z., Hogema, B., de Jonge, H.R., Seidler, U., Turner, J., Li, X., Kovbasnjuk, Donowitz, M., D-Glucose/SGLT1 activates a NHERF2 dependent process that stimulates NHE3 activity in mouse jejunum and enhances ORS efficacy. *Gastroenterology*, 140:560-571, 2011. PMID: 20977906; PMC3031713